Claims

[1]   A method for partitioning resource spaces and assigning physical channels and power in an OFDMA (orthogonal frequency division multiple access)-based cellular system, comprising:

(a) partitioning a resource within a slot into resource spaces, in common in a plurality of adjacent cells;

(b) partitioning the partitioned resource spaces into resource sets according to respective sizes of physical channels in the adjacent cells; and

(c) assigning the physical channels classified based on characteristics to the partitioned resource sets within the resource space.

[2]   A method for partitioning resource spaces and assigning physical channels and power in an OFDMA (orthogonal frequency division multiple access)-based cellular system, comprising:

(a) partitioning a resource within a slot into resource spaces, in common in a plurality of adjacent cells;

(b) partitioning the partitioned resource spaces into resource subspaces, in common in the adjacent cells;

(c) partitioning the partitioned resource spaces and the resource subspaces into resource sets according to respective sizes of physical channels in the adjacent cells; and

(d) assigning the physical channels classified based on characteristics to the partitioned resource sets within the resource space and the resource subspace.

[3]   The method of claim 1, wherein the resource space is partitioned so that a combination of the total or part of common channels, dedicated control channels, shared control channels, dedicated traffic channels, and shared traffic channels is allocated to a resource space.

[4]   The method of claim 2, wherein (b) comprises partitioning the resource space through which the common channels, the dedicated control channels, and the shared control channels of each cell into resource subspaces so that the channels with similar physical channel characteristics may be transmitted at a subspace.

[5]   The method of claim 1, wherein the resource set is partitioned to be collided as uniformly as possible with all the resource sets within the same resource space of another adjacent cell.

[6]   The method of claim 2, wherein the resource set is partitioned to be collided as

uniformly as possible with all the resource sets within one of the same resource space and the resource subspace of another adjacent cell.

[7] The method of claim 1, wherein the subcarriers which constitute the resource space is configured by one or more subcarrier sets which covers at least one wide frequency band and has a predetermined spacing.

[8] The method of claim 1, wherein the subcarriers, which constitute the resource space and the resource subspace, is configured by one or more subcarrier sets which covers at least one wide frequency band and has a predetermined spacing.

[9] The method of claim 1, comprising:

allocating a transmit power of the resource space to a physical channel which uses a fixed transmit power from among the physical channels assigned to the resource set; and

allocating a power within the maximum transmit power of the resource space to a physical channel which uses a variable transmit power from among the physical channels assigned to the resource set.

[10] The method of claim 2, comprising:

allocating a transmit power of the resource subspace to a physical channel which uses a fixed transmit power from among the physical channels assigned to the resource set; and

allocating a power within the maximum transmit power of the resource subspace to a physical channel which uses a variable transmit power from among the physical channels assigned to the resource set.

[11] The method of claim 9, wherein the transmit power is allocated by considering cell sizes, interference of adjacent cells, and a required SNR (signal to noise ratio).

[12] The method of claim 9, wherein the maximum transmit power is allocated by considering cell sizes, interference of adjacent cells, and a required SNR (signal to noise ratio).

[13] The method of claim 10, comprising:

partitioning the resource space through which the traffic channel is transmitted into resource subspaces by the number of adjacent cells according to a cell arrangement; and

allowing a transmit power higher than that of another resource subspace to a resource subspace for each cell, and differentiating the resource subspace with the allowed high transmit power for each adjacent cell.

[14]   The method of claim 10, wherein a user who needs a high transmit power for
         each cell is allowed to use a traffic channel of the resource subspace with the
         allowed high transmit power.